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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/056,247	01/24/2002	Stefan G. Berg	UNIV0120	9536

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EXAMINER

DINH, NGOC V

ART UNIT	PAPER NUMBER
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2187

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DATE MAILED: 04/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/056,247

Applicant(s)

BERG ET AL.

Examiner

NGOC V DINH

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5,8-17,20-26 and 29-31 is/are rejected.
- 7) ☒ Claim(s) 3-4,6-7,18-19,27-28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

INFORMATION DISCLOSURE STATEMENT

1. The Applicant's submission of the IDS filed 03/19/02 have been considered. As required by M.P.E.P. 609 C(2), a copy of the PTOL-1449 is attached to the instant office action.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1-2, 5, 8-17, 20-26, 29-31 are rejected under 35 U.S.C.102 (e) as being anticipated by Kosche et al PN 6,421,826.

2. As per claim 1:

Kosche teaches a method for prefetching data stored in a memory, comprising the steps of: providing a reference address associated with a machine instruction that is executable to carryout a function [e.g., explicit prefetch; hot function, identify functions that generate large number of cache faults, col. 2, lines 12-15] operation other than prefetching the data; determining that the reference address indicates a location within a prefetch region of the memory, said prefetch region being defined by compile-time information [e.g., compiling source code] associated with a set of machine instructions for processing the data; prefetching the prefetch block of the data from the prefetch region of the memory before the prefetch block of the data are required for processing in accord with the set of machine instructions [fig. 5-6; col. 2, lines 1-15; col. 4, line 60 to col. 5, line 30; col. 8, lines 10-40];

Implicitly, Kosche teaches determining an address of a prefetch block of the data within the prefetch region as a function of the reference address and the compile-time information. This is because in order to access the prefetch block, the reference address is compared with the actual address of a prefetch block has been calculated and

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generated by the compiler. If the reference address matches the calculated actual address, then the prefetch instruction is executed. Therefore, the address of a prefetch block within the prefetch region is calculated based on the reference address and the compile-time information.

3. As per claims 2, 5:

Kosche teaches determining that the reference address, address of prefetch block indicate a location within a one-dimensional prefetch region of the memory; and determining that the reference address, address of prefetch block indicate a location within a multi-dimensional prefetch region of the memory [e.g., L1 Cache, associative caches; col. 4, lines 19-23].

4. As per claims 8-13:

Kosche teaches: Per claim 8, prefetching the prefetch block of the data comprises the step of conveying the prefetch block of the data to a cache [col. 4, lines 3-10]; Per claim 9, the prefetch block of the data to a cache comprises the step of loading the prefetch block of the data into a prefetch buffer within the cache [col. 4, lines 7-10]; Per claim 10, conveying the prefetch block of the data from the prefetch buffer to a data area of the cache for use by a processor [col. 3, lines 52-65]; Per claims 11-13, determining that the prefetch block of the data is not already stored in a prefetch buffer or a write buffer or data area of a cache used to temporarily store the data for use by a processor, prior to the step of prefetching the prefetch block of the data [fig. 1-2, 5-6; col. 2, lines 16-20; col. 3, lines 45-65; col. 6, lines 37-50].

5. As per claims 14-17, 20-26, 29-31:

Claims 14-17, 20-26 and 29-31 basically are the necessary elements that carry out the corresponding operating steps in claims 1-2, 5, 8-13. Accordingly, claims 14-17, 20-26, 29-31.

Allowable Subject Matter

6. As per claims 3-4, 6-7, 18-19, 27-28:

Claims 3-4, 6-7, 18-19, 27-28 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Puzak PN 6,055,621 discloses touch prefetch instruction and compiling time.

b. Dubey PN 5,774,685 discloses prefetch instructions based upon evaluation of speculative conditions.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoc Dinh whose telephone number is (703) 305-3023.

The examiner can normally be reached on Monday-Friday 8:30 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald A. Sparks, can be reached on (703) 308-1756. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

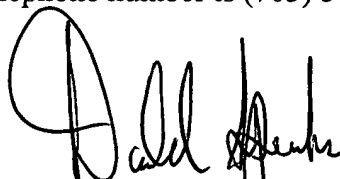


NGOC DINH

Patent Examiner

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April 16, 2004



DONALD SPARKS

Supervisory Patent Examiner

Technology Center 2100